Page 1:
Comment [aD3]: Not applicable; no biostatistics were used in this systematic review of the literature.

Page 2:
AIM: To investigate posttraumatic cytokine alterations and their value for predicting complications and mortality in polytraumatized patients.

Page 15:
COMMENTS

Background

Severe trauma represents the most frequent cause of death in people below the age of 45. Early identification of patients at risk for developing complications is one of the most challenging problems in the treatment of multiple injuries. Close monitoring of cytokine secretion patterns may provide physicians with an impression of the patient's risk for developing complications. Further, cytokine secretion patterns may pose an indication for the appropriate prophylactic treatment, as well as optimal timing of surgical interventions, thereby reducing the risk of sepsis and multiorgan failure. The aim of the current review was: (*a*) to summarize the available knowledge on specific cytokines that are involved in the posttraumatic immune alterations and (*b*) to assess the value of cytokines for predicting the development of ARDS, sepsis, MODS, MOF and mortality.

Research frontiers

Polytraumatized patients that survive the initial impact of trauma, are confronted with an enormous host defence reaction, which is associated with morbidity and mortality. Over the past 20-25 years, cytokines have gained attention in the understanding of the posttraumatic pathophysiological immune alterations. Cytokines play a pivotal role in the pro- and anti-inflammatory reaction to trauma, and are essential in the subsequent defence and repair mechanisms. As cytokines serve as messenger molecules in cell-to-cell

communication, they are likely to play an important role in the development of posttraumatic complications such as sepsis and multi organ failure.

Innovations and breakthroughs

Previous studies have acknowledged the correlation between cytokine concentrations and patients' clinical condition after polytrauma. Yet, specific predictors for the development of posttraumatic complications has not been identified. The available literature concerning the relation between cytokine concentrations and development of posttraumatic complications was systematically reviewed by the authors, and the data were extracted using a standardized collection tool.

Applications

This review suggests that IL-6, IL-8 and IL-10 are of value in the prediction of secondary deleterious effects after trauma. Close monitoring of these cytokines could direct physicians to the appropriate therapy of 'high risk' patients, thereby reducing morbidity and mortality after polytrauma.

Terminology

SIRS; Systemic Inflammatory Response Syndrome, defined according to the American College of Chest Physicians (ACCP)/Society of Critical Care Medicine (SCCM) Consensus Conference 1992. *ARDS*; Acute Respiratory Distress Syndrome, determined in concordance with the American-European Consensus Conference (AECC) 1994 definitions. *Sepsis*; diagnosed when SIRS occurs in combination with a septic focus or positive blood culture. *MODS* and *MOF*; Multi-Organ Dysfunction Syndrome/Multi-Organ Failure, diagnosed based on different scoring systems.